

Are You Ready Chapter 2 Pretest & skills.

Attendance Problems. Compare each pair of numbers. Fill in the blank with $<$, $>$ or $=$.

1. -3 _____ 2

2. 6.5 _____ 6.3

3. $\frac{1}{2}$ _____ $-\frac{3}{4}$

4. 0.25 _____ $\frac{1}{4}$

Tell whether the inequality $x < 5$ is true or false for the following values of x .

5. $x = -10$

6. $x = 5$

7. $x = 4.99$

8. $x = -\frac{1}{5}$

- I can identify solutions of inequalities with one variable.
- I can write and graph inequalities with one variable.

Vocabulary	
Inequality	Solution of an inequality

Common Core: CC.9-12.A.REI.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

Q: Why did the Moore family name their son Lester?

A: So he could be called either "Moore" or "Les."

"Show me a good loser, and I'll show you a loser." -- Vince Lombardi, football coach

$<$ $A < B$ A is less than B.	$>$ $A > B$ A is greater than B.	\leq $A \leq B$ A is less than or equal to B.	\geq $A \geq B$ A is greater than or equal to B.	\neq $A \neq B$ A is not equal to B.
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9. What is the solution to an inequality?

Video Example 1. Describe the solution of $2 + x > 7$ in words.

x	-2	0	4.99	5	5.01
$2 + x$					
$2 + x > 7$					
Solution?					

1 Identifying Solutions of Inequalities

Describe the solutions of $3 + x < 9$ in words.

Test values of x that are positive, negative, and 0.

x	-2.75	0	5.99	6	6.01	6.1
$3 + x$	0.25	3	8.99	9	9.01	9.1
$3 + x < 9$	$0.25 < 9$	$3 < 9$	$8.99 < 9$	$9 < 9$	$9.01 < 9$	$9.1 < 9$
Solution?	Yes	Yes	Yes	No	No	No

When the value of x is a number less than 6, the value of $3 + x$ is less than 9.

When the value of x is 6, the value of $3 + x$ is equal to 9.

When the value of x is a number greater than 6, the value of $3 + x$ is greater than 9.

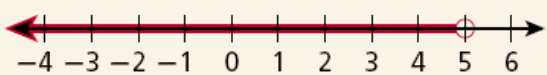
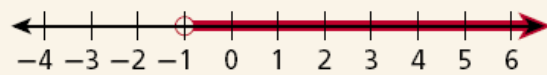
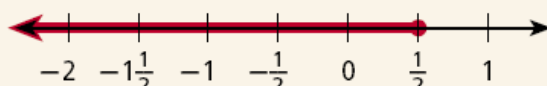
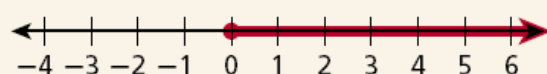
The solutions of $3 + x < 9$ are numbers less than 6.

Example 1. Describe the solutions of $x - 6 \geq 4$ in words.

x	-3	0	9.9	10	10.1	12
$x - 6$						
$x - 6 \geq 4$						
Solution?						

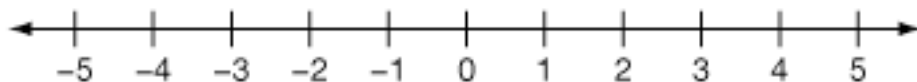
10. Guided Practice: Describe the solutions of $2p > 8$ in words.

Graphing Inequalities

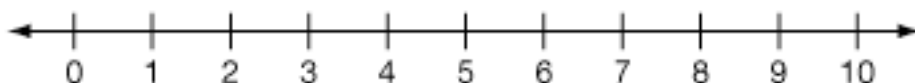
WORDS	ALGEBRA	GRAPH
All real numbers less than 5	$x < 5$	
All real numbers greater than -1	$x > -1$	
All real numbers less than or equal to $\frac{1}{2}$	$x \leq \frac{1}{2}$	
All real numbers greater than or equal to 0	$x \geq 0$	

Video Example 2. Graph the inequalities.

A. $a < -2$.

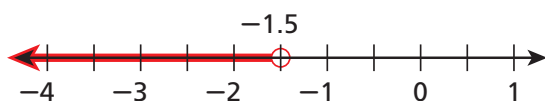


B. $a \geq -3(4 - 6)$

**2****Graphing Inequalities**

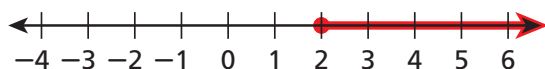
Graph each inequality.

A $b < -1.5$



Draw an empty circle at -1.5 .
Shade all the numbers less than -1.5 and draw an arrow pointing to the left.

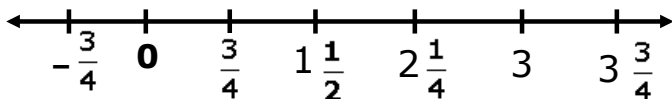
B $r \geq 2$



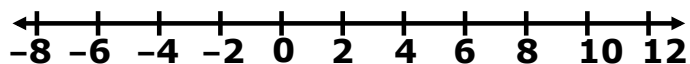
Draw a solid circle at 2.
Shade all the numbers greater than 2 and draw an arrow pointing to the right.

Example 2. Graph the inequalities.

A. $m \geq \frac{3}{4}$



B. $t < 5(-1 + 3)$



Guided Practice: Graph each inequality.

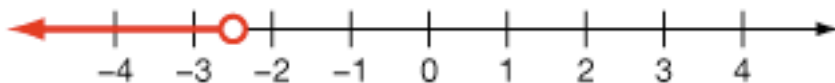
11. $c > 2.5$

12. $2^2 - 4 \geq w$

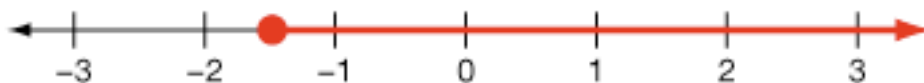
13. $m \leq -3$

Video Example 3. Write the inequality shown in the graph.

A.

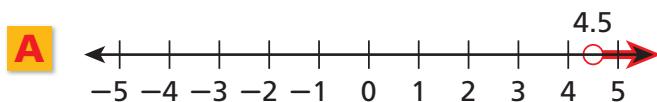


B.



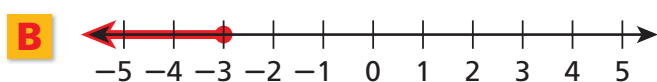
3 Writing an Inequality from a Graph

Write the inequality shown by each graph.



Use any variable. The arrow points to the right, so use either $>$ or \geq .
 The empty circle at 4.5 means that 4.5 is not a solution, so use $>$.

$$h > 4.5$$

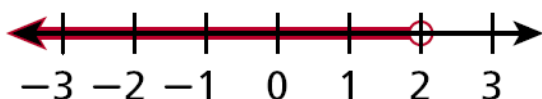


Use any variable. The arrow points to the left, so use either $<$ or \leq .
 The solid circle at -3 means that -3 is a solution, so use \leq .

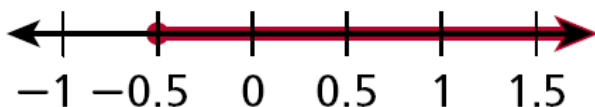
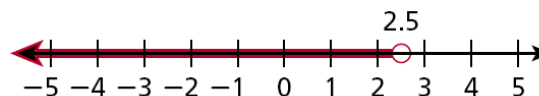
$$m \leq -3$$

Example 3. Write the inequality shown in the graph.

A.



B.

**14. Guided Practice.** Write the inequality shown in the graph.

2-1 Graphing and Writing Inequalities: (p 103) 19-25 odd, 29, 31.

Reading Math

“No more than” means “less than or equal to.”

“At least” means “greater than or equal to”.

Video Example 4. A shipping company limits the weight of the package it will ship priority to no more than 150 pounds. Define a variable and write an inequality for the acceptable weights of priority packages. Graph the solution.

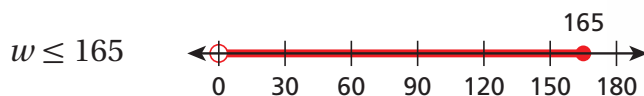
4 Sports Application

The members of a lightweight crew team can weigh no more than 165 pounds each. Define a variable and write an inequality for the acceptable weights of the team members. Graph the solutions.

Let w represent the weights that are allowed.

Athletes may weigh no more than 165 pounds.

w \leq 165



Stop the graph at 0 because a person's weight must be a positive number.



Example 4. Ray's dad told him not to turn on the air conditioner unless the temperature is at least 85°F . Define a variable and write an inequality for the temperatures at which Ray can turn on the air conditioner. Graph the solutions.

15. Guided Practice: A store's employee's earn at least \$8.50 per hour. Define a variable and write an inequality for the amount the employees may earn per hour. Graph the solutions.

2-1 Graphing and Writing Inequalities: (p 103) 19-25 odd, 29, 31, 32, 33, 40, 42, 44, 50-58.

